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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/915,963	07/26/2001	George Earl Peterson	18	8322
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Michael J. Urbano, Esq. 1445 Princeton Drive Bethlehem, PA 18017-9166			EXAMINER	
			CHEN, SHIH CHAO	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 09/915,963	<b>Applicant(s)</b> PETERSON, GEORGE EARL
	<b>Examiner</b> Shih-Chao Chen	<b>Art Unit</b> 2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(o).

#### Status

1) Responsive to communication(s) filed on 02 February 2010.  
 2a) This action is FINAL.      2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 3-10,13-20 and 22-25 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 3-10,13-20 and 22-25 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 11 July 2002 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1448)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_

5) Notice of Informal Patent Application  
 6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Request for Continued Examination***

1. The request filed on 02/02/2010 for a Request for Continued Examination (RCE) under 37 CFR 1.114 based on parent Application No. 09/915,963 is acceptable and a RCE has been established. An action on the RCE follows.

### ***Claim Objections***

2. Claim 3 is objected to because of the following informalities: in line 6, "The antenna structure" should be deleted. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 3-7, 9, 13-16, 18 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Wu et al. (U.S. Patent No. 6,317,094).

Regarding claim 3, Wu et al. teaches in figures 7, 23-24 and 27 an antenna structure comprising: at least one antenna element [314, 316] having at least one taper (See FIGURE 23); and a symmetrical finite ground plane [304] coupled with the at least one antenna element.; wherein the at least one antenna element comprises a travelling

wave antenna supporting a phase velocity greater than the speed of light (See col. 7, lines 1-14) and wherein the taper comprises a linear profile (See FIGURE 23).

Regarding claim 4, Wu et al. teaches in figures 7, 23-24 and 27 an antenna structure comprising: at least one antenna element [314, 316], the at least one antenna element having at least one taper (See FIGURE 23); and a symmetrical finite ground plane [304] coupled with the at least one antenna element.; wherein the at least one antenna element comprises a travelling wave antenna supporting a phase velocity greater than the speed of light (See col. 7, lines 1-14) and wherein the antenna structure [300] supports a cigar-like directional three-dimensional beam pattern and a butterfly wing-like directional three-dimensional beam pattern.

Regarding claim 5, Wu et al. teaches in figures 7, 23-24 and 27 the antenna structure of Claims 3 or 4, wherein the at least one antenna element [314, 316] is positioned at an angle from the symmetrical ground plane [304] (See FIGURE 23).

Regarding claim 6, Wu et al. teaches in figures 7, 23-24 and 27 the antenna structure of Claim 5, wherein the angle is about 90 degrees with respect to the x-, y- and z- axes (See FIGURE 23).

Regarding claim 7, Wu et al. teaches in figures 7, 23-24 and 27 the antenna structure of Claim 1, wherein the at least one antenna element [314, 316] is coupled with the symmetrical ground plane [304] by means of an unbalanced impedance [308].

Regarding claim 9, Wu et al. teaches in figures 7, 23-24 and 27 the antenna structure of Claim 7, wherein a first conductor of the unbalanced impedance [308]

mechanically couples the at least one antenna element [314, 316] with the symmetrical ground plane [304].

Regarding claim 13, Wu et al. teaches in figures 7, 23-24 and 27 an antenna structure comprising: an array of at least two antenna elements [315], each antenna element having at least one taper (See FIGURE 27B); a symmetrical finite ground plane [304]; and an unbalanced impedance [308] for coupling the array of at least two antenna elements with the symmetrical ground plane; wherein at least one antenna element of the array comprises a travelling wave antenna supporting a phase velocity greater than the speed of light (See col. 7, lines 1-14) and wherein the taper of at least one antenna element of the array comprises a linear profile (See FIGURE 23 § 27B).

Regarding claim 14, Wu et al. teaches in figures 7, 23-24 and 27 an antenna structure comprising: an array of at least two antenna elements [315], each antenna element having at least one taper (See FIGURE 27B); a symmetrical finite ground plane [304]; and an unbalanced impedance [308] for coupling the array of at least two antenna elements with the symmetrical ground plane; wherein at least one antenna element of the array comprises a travelling wave antenna supporting a phase velocity greater than the speed of light (See col. 7, lines 1-14) and wherein each antenna element of the array supports a cigar-like directional three-dimensional beam pattern and a butterfly wing-like directional three-dimensional beam pattern.

Regarding claim 15, Wu et al. teaches in figures 7, 23-24 and 27 the antenna structure of Claims 13 or 14, wherein each antenna element of the array [315] is positioned at an angle from the symmetrical ground plane [304].

Regarding claim 16, Wu et al. teaches in figures 7, 23-24 and 27 the antenna structure of Claim 15, wherein the angle for each antenna element [314] is about 90 degrees with respect to the x-, y- and z- axes.

Regarding claim 18, Wu et al. teaches in figures 7, 23-24 and 27 the antenna structure of Claim 17, wherein a first conductor of the unbalanced impedance [308] mechanically couples each antenna element of the array [315] with the symmetrical ground plane [304].

Regarding claim 20, Wu et al. teaches in figures 7, 23-24 and 27 the antenna structure of Claims 13 or 14 further comprising a slow wave antenna (i.e. surface wave antenna) to widen the directivity of the antenna structure [300] (See col. 7, lines 1-14).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8, 17, 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (cited above) in view of Applicant cited prior art (FIG. 1).

Wu et al teaches every feature of the claimed invention except for the unbalanced impedance comprises a coaxial cable.

Applicant cited prior art (FIG. 1) teaches the unbalanced impedance comprises a coaxial cable [35].

In view of the above statement, it would have been obvious to one having ordinary skill in the art at the time the invention was made by using unbalanced impedance commonly comprises a coaxial cable as taught by Applicant cited prior art in order to have the different type of the feed line.

7. Claims 10, 19, 22-23 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (Cited above) in view of Ogot et al. (U.S. Patent No. 5,648,787).

Wu et al. teaches every feature of the claimed invention except for the symmetrical ground plane is disk shaped.

Ogot et al. teaches in figure 3A the symmetrical disk shaped finite ground plane (210,250).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to substitute the metal ground plane as shown in Wu et al. by using the symmetrical disk shaped finite ground plane as taught by Ogot et al. in order to maximize the surface area of the ground plane perpendicular to the transmission element, and provides a uniform transmission pattern (See col. 4, lines 66-67 and col. 5, line 1-3).

#### ***Response to Arguments***

8. Applicant's arguments with respect to claims 3-10, 13-20 and 22-25 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shih-Chao Chen whose telephone number is (571) 272-1819. The examiner can normally be reached on Monday-Thursday from 7 AM to 5:30 PM, Fri. off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Shih-Chao Chen  
Primary Examiner  
Art Unit 2821

SXC  
May 13, 2010  
/Shih-Chao Chen/  
Primary Examiner, Art Unit 2821